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A NEW INSECTIVORE FROM THE WHITE RIVER BEDS.

BY W. B. SCOTT.

The American Tertiary formations have yielded a surprisingly scanty insectivorous fauna. Many names have, it is true, been proposed, but for the most part, these names have been given to such fragmentary and uncharacteristic specimens, that they remain mere *nomina nuda*. Only one family, the *Leptictidae*, is at all well understood, and the ancestors of even the peculiarly American recent types are still quite unknown.

During the past summer Mr. M. S. Farr, of the Chicago University Expedition to the White River bad lands of South Dakota, had the good fortune to discover an insectivorous type new to the American Tertiary fauna, and representing an undescribed genus. For the opportunity of studying and describing this very interesting specimen, I am indebted to the kindness of Professor Baur, to whom I desire to express my very sincere thanks.

The specimen consists of the facial region and mandible, with nearly complete dentition, of a small animal, which upon examination, proves to be a member of the family *Soricidae*, or shrews, though not altogether agreeing with the definition of that family as usually given. This is the first of the family to be found in any Tertiary horizon of North America.

The genus may be called *Protosorex* and is defined as follows: Maxillary dentition much as in *Sorex*, but with less reduced third molar and smaller internal cusps on last premolar. Mandible with *four* minute teeth between the molars and the large, procumbent incisors. In all other known *Soricidae* the number of such teeth is *two*, except in one species of *Myosorex*, which sometimes has three.

The species, *P. crassus*, sp. nov., is characterized by the rather short and broad face, vaulted palate, straight alveolar border, and by the relatively large size.

The type specimen is of an individual rather advanced in life, and all the facial sutures have disappeared. The upper surface of the fronto-nasal region is straighter, broader, and more flattened than in the recent species of *Sorex*. The zygomatic arches have already

completely disappeared, the suborbital portion of the maxillary terminating in a rounded surface. The infraorbital foramen is very large and occupies the usual position above p4 and m1. In advance of p4 the muzzle is quite sharply constricted and narrowed. The palate is quite deeply vaulted and concave transversely; between the molars of the two sides it is broad, but narrows rapidly in front of them. No foramina or failures of ossification are visible in the palate. The posterior nares have a similar shape and position to those of *Sorex*, but differ in the raised and thickened front border. The anterior portion of the muzzle is slender and tubular and the narial opening is small and terminal. The horizontal ramus of the mandible is proportionately stout and bears a single conspicuous mental foramen beneath the first molar. Condyle and angle are missing.

In the upper jaw the crowns of the anterior teeth are broken away, leaving only the fangs. The first incisor was large and compressed like that of *Sorex*, but it is impossible to determine whether it had the basal cusp found in that genus. This is followed by four minute, single-fanged teeth, the homologies of which are doubtful. The last premolar is as large as, though much less complicated than a molar; it resembles the corresponding tooth of *Sorex*, but the internal cusp (deuterocone) is relatively less expanded and basin-shaped. The molars have the same construction as in *Sorex*; the last molar is much the smallest of the series, though less reduced than in the modern genus.

The large lower incisor has lost most of its crown, but it would appear to be less entirely procumbent than in *Sorex*. Behind this tooth come four minute and closely crowded teeth, with compressed, chisel-like crowns, of which the first and the fourth are slightly larger and more prominent than the others. As in the upper jaw, the molars are like those of *Sorex*.

Measurements.

Length of upper dental series, exclusive of 1st incisor	M.	0.009
" " molar series . . .		.004
" lower dental series, exclusive of incisor .		.007
" " molar series . . .		.005
Length of palate . . . .		.010
Breadth of palate at <u>m2</u> . . . .		.004

Measurements—(continued).

Breadth of face at orbits	.	.	.	.	.	M. .008
“ “ <u>p3</u>	.	.	.	.	.	.005
Depth of mandible at <u>m2</u>	.	.	.	.	.	.0025

Protosorex represents the most primitive type of *Soricidae* which has yet been discovered, as is shown by the large number of teeth which it has retained. It is, however, not the most ancient form of shrew known, the phosphorites of Quercy, which are as old or older than the White River beds, having yielded species of *Sorex* (*Amphisorex* Filhol). This points to a very high antiquity of the family.